



## **WATER RESOURCES RESEARCH GRANT PROPOSAL**

**Project ID:** 2005MN118B

**Title:** A Rapid Bioassessment Approach for Integrating Biological Data into TMDL Development for Organic Enrichment of Streams in Urbanizing Watersheds

**Project Type:** Research

**Focus Categories:** Water Quality, Nutrients, Models

**Keywords:** TMDL, Rapid Bioassessments, Organic Enrichment, Chironomidae, Urbanization, Vermillion River

**Start Date:** 03/01/2005

**End Date:** 02/28/2006

**Federal Funds:** \$0

**Non-Federal Matching Funds:** \$25,519

**Congressional District:** 5

**Principal Investigator:**  
Leonard Charles Ferrington Jr.

### **Abstract**

Section 303d of the Clean Water Act focuses on ambient water quality standards, and requires states (1) to identify surface waters not meeting ambient water quality standards appropriate for their designated use categories and (2) to define the pollutants and their sources that are responsible for non-attainment of the ambient water quality standards. Section 303d further requires states to establish Total Maximum Daily Loads (TMDL) for pollutants impairing surface waters and to develop strategies for reducing both point and non-point sources of the pollutants in order for non-attaining waterbodies to meet ambient water quality standards.

Biological data are typically integrated into the above process as “front-end” input, being used (1) to assist in development of designated use categories and (2) in monitoring efforts to ensure that ambient water quality standards are met. However, prediction of biological responses that are likely to result from implementation of TMDL plans is not a fundamental element of the TMDL process. In a recent overview of the TMDL approach to water quality management requested by the US Congress, the National Research Council made several recommendations for integration of biological data into the TMDL



process. Among the recommendations, the report states “EPA should promote the development of models that can more effectively link environmental stressors (and control actions) to biological responses” and “Monitoring and data collection programs need to be coordinated with anticipated water quality and TMDL modeling requirements”. This proposal is to employ a newly tested rapid bioassessment technique developed for assessing organic enrichment in urban areas of Minneapolis/Saint Paul (Minnehaha Creek) in a second watershed (Vermillion River catchment) that is undergoing rapid urban development.